

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-20 are currently pending. Claims 1-20 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Figures 16 and 17 were objected to as failing to contain a legend such as "Prior Art"; Claims 1-20 were objected to regarding various informalities; Claims 1-12 were rejected under 35 U.S.C. § 112, first paragraph, because "Claims 1 and 6 define a single means or element that does not appear in combination with another recited element";¹ Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by Wijting et al. ("Groupwise Serial Multiuser Detectors for Multirate DS-CDMA") (hereinafter "the Wijting et al. reference"); Claims 1 and 6 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,526,271 to Uesugi et al. (hereinafter "the '271 patent"); and Claims 13-20 were indicated as allowable if rewritten or amended to overcome the claim objections noted in the Office Action.

Applicants wish to thank the Examiner for the interview granted Applicants' representative on March 23, 2004, at which time Claims 1 and 6 were discussed. No agreement was reached, pending the Examiner's further consideration of the claims upon formal submission of a response to the outstanding Office Action. However, the Examiner indicated that Claims 2-5 and 7-12 would be allowed if the rejection of the claims under 35 U.S.C. § 112 is overcome.

Regarding the objection to the Drawings, submitted herewith is a Letter to the Official Draftsman as well as formal drawings of amended Figures 16 and 17. Figures 16 and 17

¹ Page 3 of the Office Action dated February 25, 2004.

have been amended to include the legend "Background Art." Accordingly, the objection to the drawings is believed to have been overcome.

Applicants respectfully submit that the objections to Claims 1-20 are rendered moot by the present amendment to those claims. The claims have been amended as suggested in the Office Action. Accordingly, the objection to the claims is believed to have been overcome.

Applicants respectfully traverse the rejection of Claims 1-12 under 35 U.S.C. § 112, first paragraph, since independent Claims 1 and 6 are not *single means* claims. Applicants note that M.P.E.P. § 2164.08(a), which was referred to in the Office Action, is directed to "single means" claims. However, Claims 1 and 6 are apparatus claims that do not recite means-plus-function language. Accordingly, Applicants respectfully traverse the rejection of Claims 1-12 under 35 U.S.C. § 112.

Amended Claim 1 is directed to an interference cancellation apparatus, applied in a CDMA communication system in which transmission rate information for each user in a plurality of users is known, and configured to sequentially cancel and interference among each of the users based on a rank of each user, the apparatus comprising: a rank determination unit configured to determine the rank of each user, from a highest ranked user to a lowest ranked user, based on the known transmission rate information of each user. Claim 1 has been amended to clarify that *the known transmission rate of each user is not detected by measuring signal power*. The changes to Claim 1 are supported by the originally filed specification and do not add new matter.²

Applicants respectfully submit that the rejection of Claim 1 as anticipated by the Wijting et al. reference is rendered moot by the present amendment to Claim 1.

² See e.g., page 14 of the specification.

The Wijting reference is directed to a Groupwise Successive Interference Cancellation (GSIC) system in which users with a same data rate are grouped and detected, using either a matched filter or a PIC receiver, and interference within the groups is cancelled in a successive order. As shown in Figure 1, the Wijting et al. reference discloses that “after the highest rate users have been detected and the multiple access interference is canceled[,] the users with the second highest data rate are detected. This is continued until the lowest data rate user has been detected.”³ Thus, Applicants respectfully submit that the Wijting et al. reference fails to disclose that a rank determination unit configured to determine the rank of each user based on the known transmission rate information for each user, *wherein the known transmission rate of each user is not detected by measuring the signal power*. Rather, the Wijting et al. reference discloses the detection of the transmission rate of each user. Accordingly, Applicants submit that amended Claim 1 patentably defines over the Wijting et al. reference.

Regarding the rejection of Claim 1 as anticipated by the ‘271 patent, the ‘271 patent is directed to a method and apparatus for interference rejection. The ‘271 patent discloses that, in one embodiment, the transmission control section 801 selects, e.g., a user with a high transmission rate or a user for which the transmit power needs to be increased higher than that of a normal user.⁴ However, Applicants respectfully submit that the ‘271 patent fails to disclose a rank determination unit configured to *determine the rank of each user, from a highest ranked user to a lowest ranked user*, based on the known transmission rate information of each user, wherein the known transmission rate of each user is not detected by measuring signal power. Rather, the ‘271 patent merely discloses that a user with a “high transmission rate” may be selected. Applicants respectfully submit that such a system is not equivalent to an apparatus configured to determine the rank of each user based on known

³ See page 837 of the Wijting et al. reference.

⁴ See ‘271 patent, col. 15, lines 33-36.

transmission rate information, including determining the highest ranked user and the lowest ranked user. Accordingly, Applicants respectfully traverse the rejection of Claim 1 as anticipated by the '271 patent.

Amended Claim 6 is directed to an interference cancellation apparatus, applied in a CDMA communication system in which transmission rate information and required quality information for each user in a plurality of users is known, and configured to sequentially cancel the interference among each of the users based on a rank of each user, the apparatus comprising: a rank determination unit configured to determine the rank of each user, from a highest ranked user to a lowest ranked user, based on the known transmission rate information *and the required quality information for each user*.

Regarding the rejection of Claim 6 as anticipated by the '271 patent, Applicants note that the '271 patent discloses that the transmission control section 801 selects a user with a high transmission rate or a user for which transmit power needs to be increased higher than that of a normal user, e.g., "a user with a high required user quality or a user with a high payment when the rate differentiation is performed."⁵ However, Applicants respectfully submit that the '271 patent fails to disclose a rank determination unit configured to rank each of the users, from a highest ranked user to a lowest ranked user, based on the known transmission rate information and the required quality information for each user. Rather, Applicants submit that the '271 patent merely discloses the selection of a user based on transmission rate requirements *or* quality requirements. Accordingly, Applicants respectfully traverse the rejection of Claim 6 as anticipated by the '271 patent.

Thus, it is respectfully submitted that independent Claims 1 and 6 (and all associated dependent claims) patentably define over the Wijting et al. reference and the '271 patent.

⁵ '271 patent, column 15, lines 36-38.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

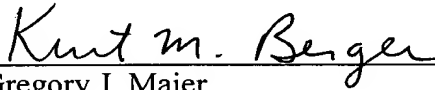
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)

GJM/KMB/law



Gregory J. Maier
Attorney of Record
Registration No. 25,599
Kurt M. Berger, Ph.D.
Registration No. 51,461